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Berwitz et al.

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- (54) **METHOD, SYSTEM, AND COMPUTER PROGRAM PRODUCT FOR SPEND MAPPING TOOL**
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- (75) Inventors: **Joshua M. Berwitz**, New York, NY (US); **Guillaume J. Bouvard**, New York, NY (US); **Charles C. Lyon**, New York, NY (US); **Jon K. Ruterma**n, Glendale, AZ (US); **Joseph M. Zeltzer**, Hoboken, NJ (US)
- (73) Assignee: **American Express Travel Related Services Company, Inc.**, New York, NY (US)
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Primary Examiner — Gurkanwaljit Singh
(74) *Attorney, Agent, or Firm* — Snell & Wilmer L.L.P.

(52) **U.S. Cl.**
CPC **G06Q 30/0271** (2013.01); **G06Q 30/0276** (2013.01); **G06K 19/07749** (2013.01)
USPC **705/14.17**; 705/14.26; 705/14.27; 235/492

(57) **ABSTRACT**

A spend mapping tool provides a system, method, and computer program product for analyzing transactions between merchants and cardmembers. The tool groups a merchant by industry in a merchant industry group. The tool also groups a cardmember by industry in a cardmember industry group. Further, the tool analyzes transaction data from a transaction between at least one merchant in said merchant industry group and at least one cardmember in said cardmember industry group.

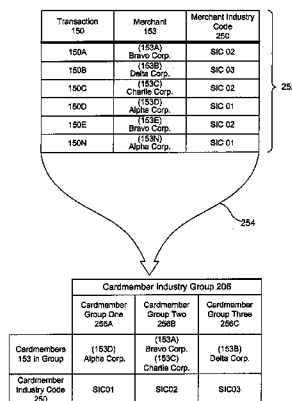
(58) **Field of Classification Search**
None
See application file for complete search history.

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17 Claims, 12 Drawing Sheets



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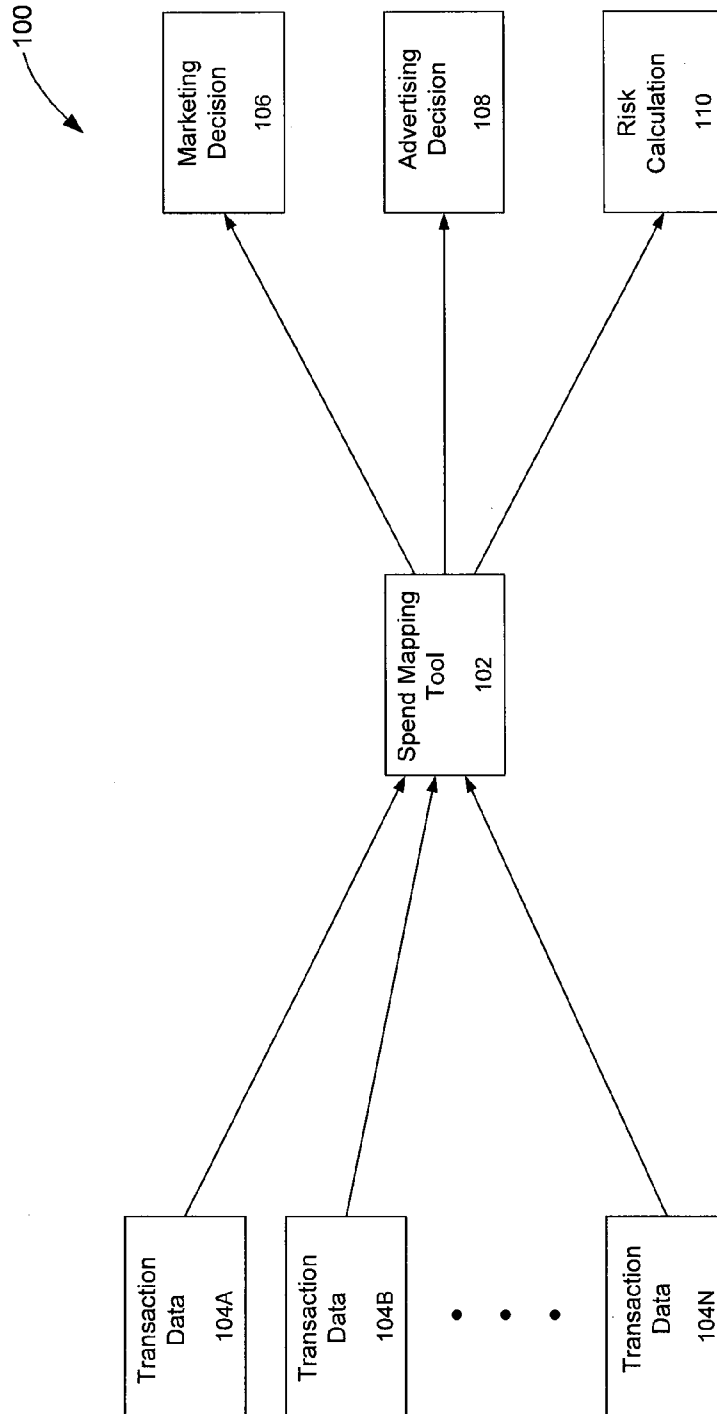


FIG. 1A

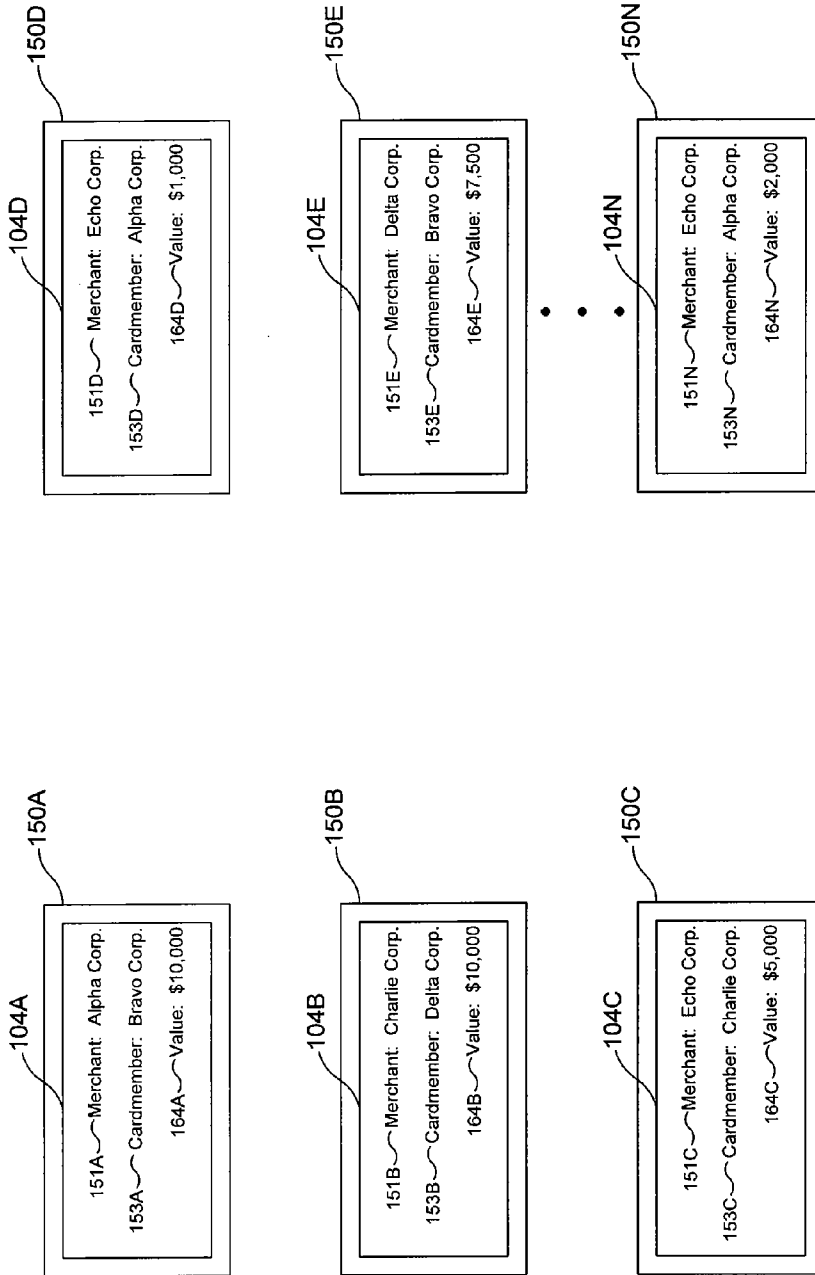


FIG. 1B

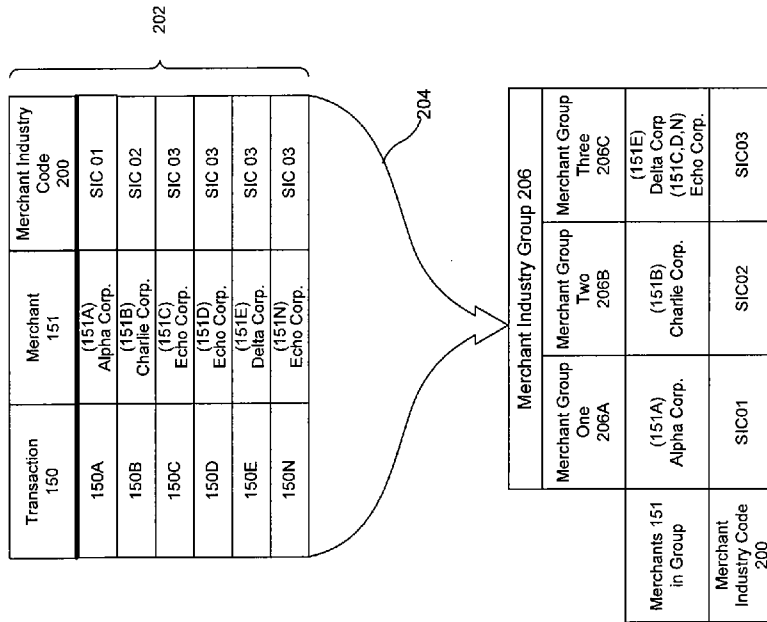


FIG. 2A

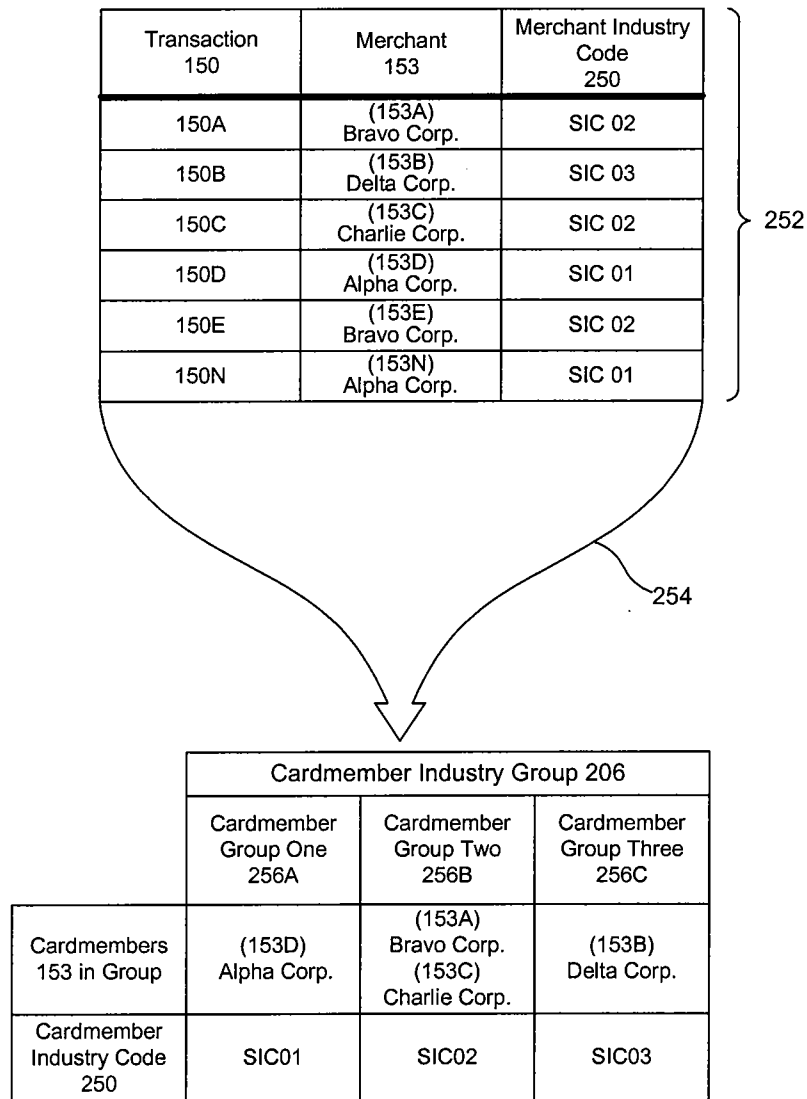


FIG. 2B

300

Merchant Industry Code 200 →	SIC01	SIC02	SIC03
Card-member Industry Code 250 →	SIC01	SIC02	SIC03
	SIC01	SIC02	SIC03
	304 Empty	302 Empty	Empty
	150A	150C 150E	150D 150N
	Empty	150B	Empty

FIG. 3

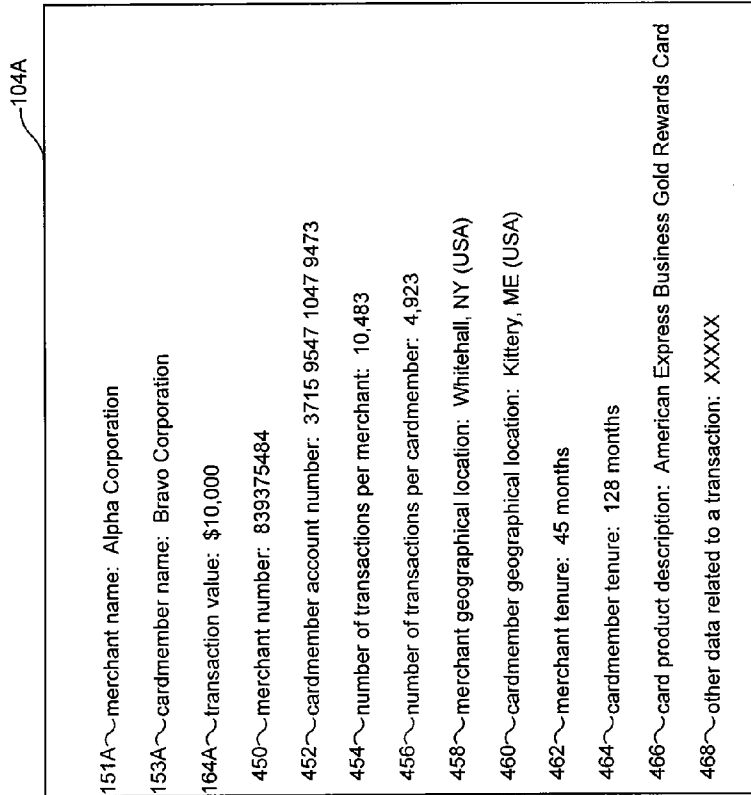


FIG. 4

500

Merchant Industry Code 200 Card-member Industry Code 250	Total number of transactions per cardmember Industry Group 504	SIC01	SIC02	SIC03
	X	1	1	4
Total number of transactions per merchant Industry Group 506		0	0	2
SIC01	2			501
SIC02	3	1	0	2
SIC03	1	0	1	0

508

502

FIG. 5

600

Merchant Industry Code Card-member Industry Code 200 250	Total Cardmember Industry Group Transaction Value 604	SIC01	SIC02	SIC03
Total merchant Industry Group Transaction Value 606	X	\$10,000	\$10,000	\$15,500
SIC01	\$3,000	0	0	\$3,000
SIC02	\$22,500	\$10,000	0	\$12,500
SIC03	\$10,000	0	\$10,000	0

601
602

FIG. 6A

625

604

606

627

602

Cardmember SIC-2	Merchant SIC-2	01	02	07	08
		Agricultural Production - Crops	Agricultural Production - Livestock and Animal Specialties	Agricultural Services	Forestry
TOTAL	TOTAL	42,000	19,000	39,500	39,500
Missing		8,000	1,000	500	6,000
01: Agricultural Production - Crops		10,000	4,000	6,000	3,000
02: Agricultural Production - Livestock and Animal Specialties		5,000	3,000	2,000	500
07: Agricultural Services		4,000	1,000	12,000	10,000
08: Forestry		1,000	6,000	1,000	7,000
09: Fishing, Hunting, and Trapping		14,000	4,000	12,000	13,000
10: Metal Mining		0	0	6,000	0

FIG. 6B

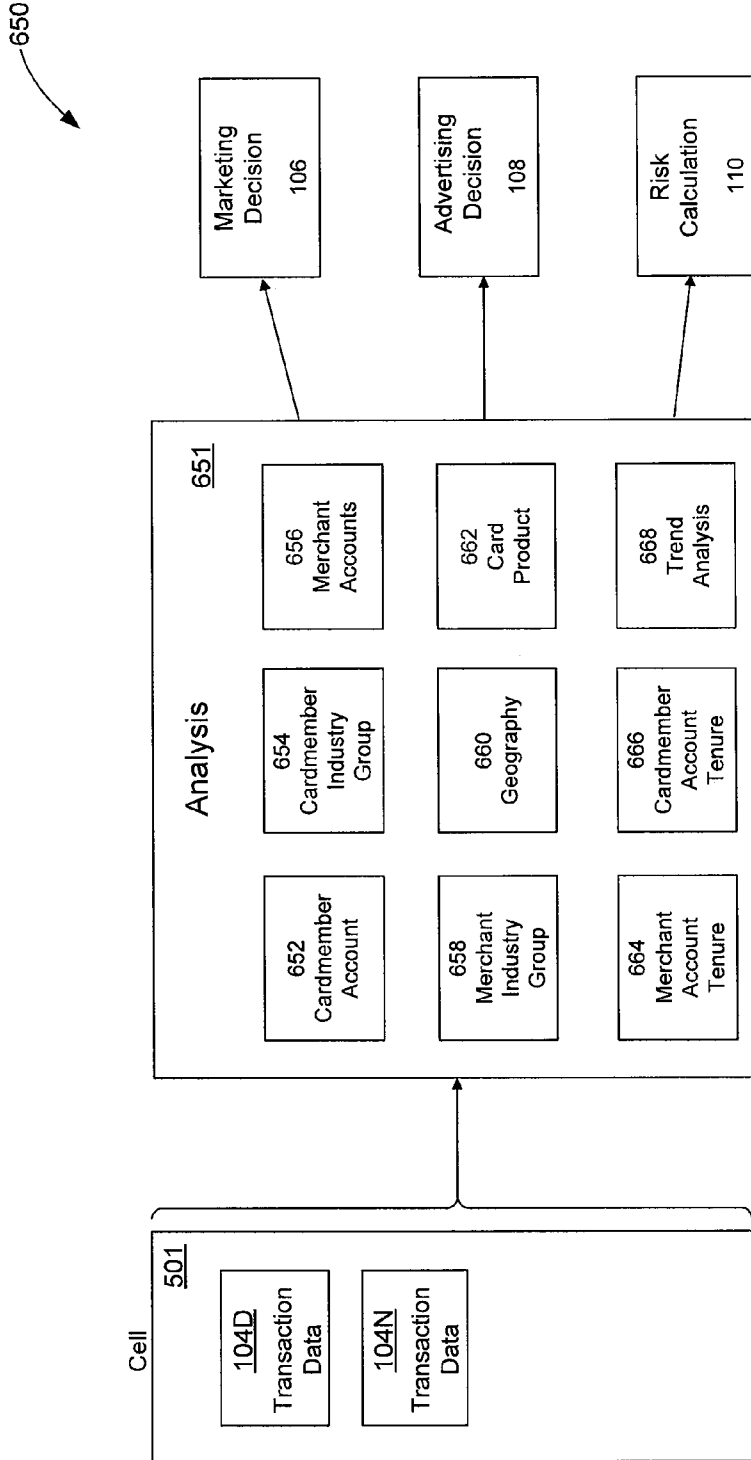


FIG. 6C

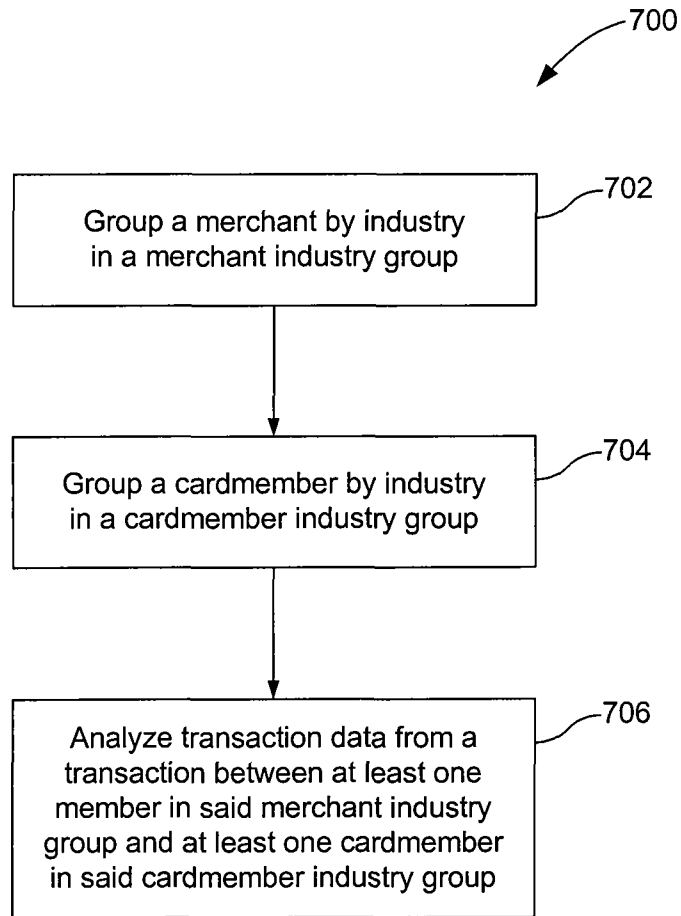


FIG. 7

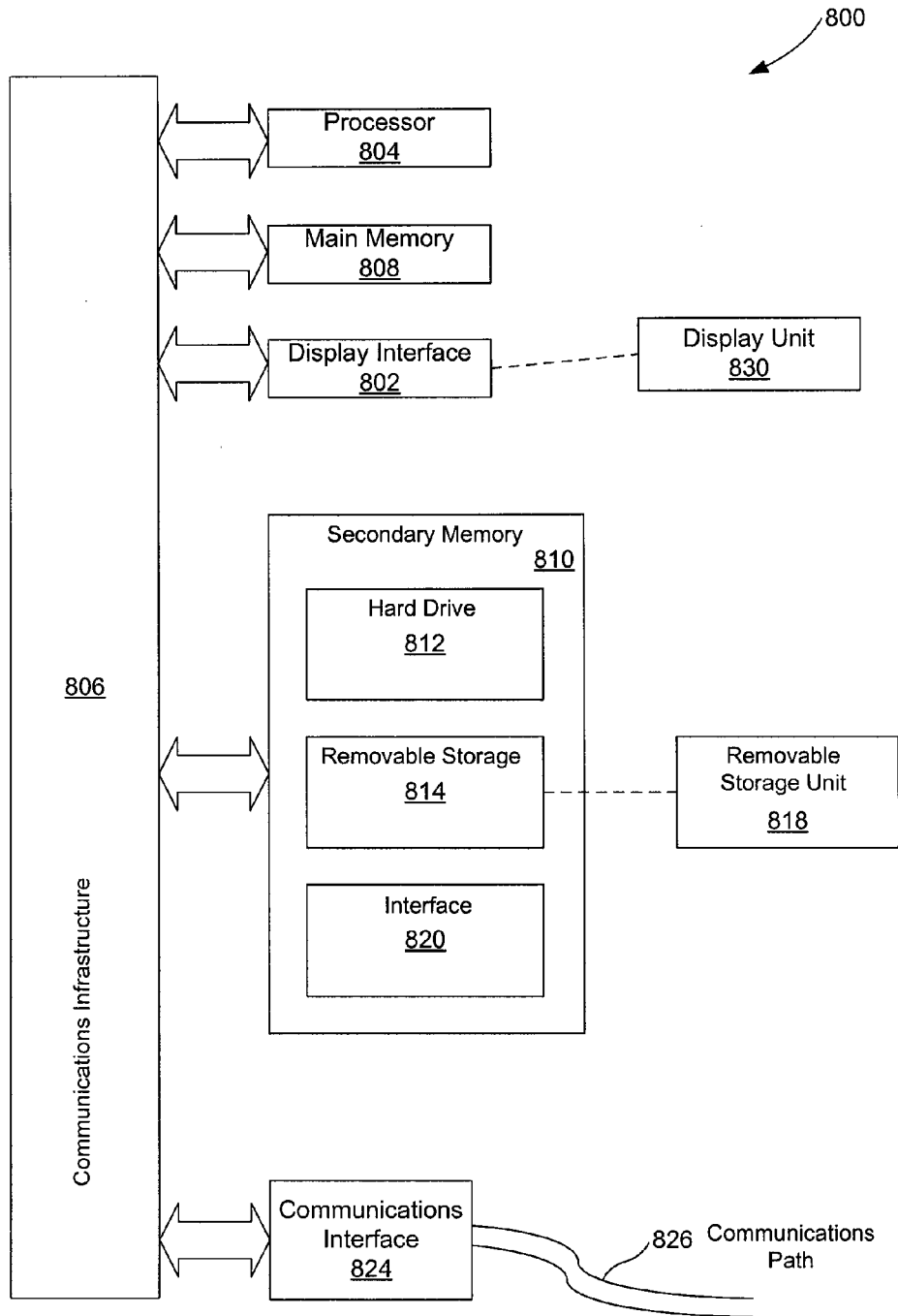


FIG. 8

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METHOD, SYSTEM, AND COMPUTER PROGRAM PRODUCT FOR SPEND MAPPING TOOL

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to analysis of financial transactions between parties and, more particularly, to analyzing financial transactions between groups of industries.

2. Background Art

Marketing and advertising of financial services and products to businesses broadly targets potential and current customers. Financial services and products include financial transaction instruments such as credit cards. Traditional marketing and industry analysis does not always identify specific needs of specific business customers. As a result, traditional marketing and segmentation of financial services and products to businesses is not always accurate because it does not effectively identify specific needs of specific groups of business customers. In addition, traditional advertising of financial services and products to businesses uses a broad approach that inaccurately and inefficiently targets business customers because the advertising does not effectively convey how the financial services and products provide satisfaction of specific business customer needs. Furthermore, traditional advertising also does not evaluate the effect of advertisements based on industry transactions between targeted markets. Moreover, traditional marketing and advertising sub-optimally encourages transactions between specific customer industries.

In addition to these problems, conventional financial transaction risk profiling is often inaccurate because it does not take into account transaction risk based on the industries of the respective parties.

BRIEF SUMMARY OF THE INVENTION

A spend mapping tool provides a system, method, and computer program product for analyzing transactions between merchants and cardmembers. The tool groups a merchant by industry in a merchant industry group. The tool also groups a cardmember by industry in a cardmember industry group. Further, the tool analyzes transaction data from a transaction between at least one merchant in the merchant industry group and at least one cardmember in the cardmember industry group.

Further embodiments, features, and advantages of the present invention, as well as the structure and operation of the various embodiments of the present invention, are described in detail below with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS/FIGURES

The accompanying drawings, which are incorporated herein and form a part of the specification, illustrate the present invention and, together with the description, further serve to explain the principles of the invention and enable a person skilled in the pertinent art to make and use the invention.

FIG. 1A illustrates an implementation of a spend mapping tool;

FIG. 1B illustrates transactions between cardmembers and merchants;

FIG. 2A illustrates grouping of merchants by industry;

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FIG. 2B illustrates grouping of cardmembers by industry; FIG. 3 illustrates analysis of transaction data between merchant industry groups and cardmember industry groups;

FIG. 4 illustrates exemplary transaction data;

FIG. 5 illustrates analysis of number of transactions between industry groups;

FIG. 6A illustrates analysis of transaction value between industry groups;

FIG. 6B is an exemplary screen shot generated by the spend mapping tool;

FIG. 6C illustrates an overview of analysis of transaction data;

FIG. 7 is a flowchart of a process for analyzing transactions between merchants and cardmembers; and

FIG. 8 is a block diagram of an exemplary computer system useful for implementing the present invention.

The present invention will be described with reference to the accompanying drawings. The drawing in which an element first appears is typically indicated by the leftmost digit(s) in the corresponding reference number.

DETAILED DESCRIPTION

I. Overview

A spend mapping tool provides a system, method, and computer program product to analyze business-to-business transactions between a merchant industry group and a cardmember industry group. An advantage of the spend mapping tool is that it identifies underdeveloped business-to-business markets. It also identifies and clarifies market characteristics of a business-to-business market between the merchant industry group and the cardmember industry group.

Identification of market characteristics enables more accurate and more efficient marketing and market segmentation because it identifies specific needs, as well as absence of needs, of specific business customers in specific markets. The desirability of markets is also more accurately identified.

In addition, the spend mapping tool improves accuracy and efficiency of developing an industry strategy as well as aligning products and services with appropriate customers and merchants. The spend mapping tool also Market characteristics may also be used as input to a transaction risk calculation to improve accuracy of a risk calculation.

Further, identifying market characteristics enables more accurate and efficient advertising because an advertising effort can more accurately target a specific desirable market while avoiding a less desirable market. Market characteristics also may be used to tailor advertising content to a target market. Trend analysis of market characteristics may be used to evaluate impact of advertising.

The transaction analysis is performed on transaction data such as the number of transactions, transaction amount, number of merchant accounts, number of cardmember accounts, transaction geography, card product use, merchant account tenure, and cardmember account tenure as well as other data. Trend analysis may be performed on analysis results, such as market characteristics, to produce time-dependent results.

The tool operates as follows. Transaction data from a plurality of transactions between merchants and cardmembers is input to the tool. The tool groups individual merchants by industry into an appropriate merchant industry group. The tool groups individual cardmembers by industry into an appropriate cardmember industry group. Each merchant industry group and each cardmember industry group are identified by a respective Standard Industrial Classification (SIC) code. The tool then analyzes transaction data from transac-

tions between cardmembers in a specific cardmember industry group and merchants in a specific merchant industry group. Analysis results are input to at least one of a marketing decision, an advertising decision, and a risk calculation.

While specific configurations and arrangements are discussed, it should be understood that this is done for illustrative purposes only. This specification discloses one or more embodiments that incorporate the features of this invention. The disclosed embodiment(s) merely exemplify the invention. The scope of the invention is not limited to the disclosed embodiment(s). The invention is defined by the claims.

References in the specification to “one embodiment,” “an embodiment,” “an example embodiment,” etc. indicate that the embodiment described may include a particular feature, structure, or characteristic, but every embodiment may not necessarily include the particular feature, structure, or characteristic. Moreover, such phrases are not necessarily referring to the same embodiment. Further, when a particular feature, structure, or characteristic is described in connection with an embodiment, it would be within the knowledge of one skilled in the art to effect such feature, structure, or characteristic in connection with other embodiments whether or not explicitly described.

The terms “user,” “end user,” “consumer,” “customer,” “participant,” “cardmember,” and the plural form of these terms are used interchangeably throughout herein to refer to those persons or entities capable of accessing, using, being affected by, or benefiting from the tool that the present invention provides for spend mapping. A cardmember may be a person or legal entity.

Furthermore, the terms “business” and “merchant” may be used interchangeably with each other and shall mean any person, entity, distributor system, software, or hardware that is a provider, broker, or other entity in the distribution chain of goods or services. For example, a merchant may be a grocery store, a retail store, a travel agency, a service provider, an on-line merchant, or the like. A merchant may be a person or legal entity.

A “transaction account” as used herein refers to an account associated with an open account or a closed account system (as described herein). The transaction account may exist in a physical or non-physical embodiment. For example, a transaction account may be distributed in non-physical embodiments such as an account number, frequent-flyer account, telephone calling account or the like. Furthermore, a physical embodiment of a transaction account may be distributed as a financial transaction instrument. Transaction accounts have data, such as account and merchant numbers, that are used as transaction data.

A “financial transaction instrument” is a physical embodiment of a transaction account. A financial transaction instrument may be traditional plastic transaction cards, metal-containing transaction cards, clear or translucent transaction cards, foldable or otherwise unconventionally-sized transaction cards, radio-frequency enabled transaction cards, or other types of transaction cards, such as credit, charge, debit, pre-paid, or stored-value cards, or any other like financial transaction instrument. A financial transaction instrument may also have electronic functionality provided by a network of electronic circuitry that is printed or otherwise incorporated onto or within the financial transaction instrument (typically referred to as a “smart card”). A financial transaction instrument may be a fob having a transponder and an RFID reader.

“Open cards” are financial transaction cards that are generally accepted at different merchants. Examples of open cards include the American Express®, Visa®, MasterCard®

and Discover® cards, which may be used at many different retailers and other businesses. In contrast, “closed cards” are financial transaction cards that may be restricted to use in a particular store, a particular chain of stores or a collection of affiliated stores. One example of a closed card is a pre-paid gift card that may only be purchased at, and only be accepted at, a clothing retailer.

“Stored value cards” are forms of transaction instruments associated with transaction accounts, wherein the stored value cards provide cash equivalent value that may be used within an existing payment/transaction infrastructure. Stored value cards are frequently referred to as gift, pre-paid or cash cards, in that money is deposited in the account associated with the card before use of the card is allowed. For example, if a customer deposits ten dollars of value into the account associated with the stored value card, the card may only be used for payments together totaling no more than ten dollars.

An “account,” “account number” or “account code”, as used herein, may include any device, code, number, letter, symbol, digital certificate, smart chip, digital signal, analog signal, biometric, or other identifier suitably configured to allow a consumer to access, interact with, or communicate with, a financial transaction system. The account number may optionally be located on or associated with any financial transaction instrument. The account number may be distributed and stored in any form of plastic, electronic, magnetic, radio frequency (RF), wireless, audio or optical device capable of transmitting or downloading data from itself to a second device. A merchant account number may be, for example, at least one alpha-numeric character that identifies a particular merchant for purposes of card acceptance, account reconciliation, reporting, and the like. Similarly, a cardmember account number may be, for example, at least one alpha-numeric character that identifies a particular cardmember for purposes of card acceptance, account reconciliation, reporting, and the like.

Persons skilled in the relevant art will understand the breadth of the terms used herein and that the exemplary descriptions provided are not intended to be limiting of the generally understood meanings attributed to the foregoing terms.

II. Exemplary Implementations

FIG. 1A illustrates a simplified exemplary implementation **100** of a spend mapping tool **102**. Transaction data **104A, B, . . . , N** is input to spend mapping tool **102**. Further details about transaction data **104** are found in FIGS. 1B and 4. The spend mapping tool **102** analyzes the transaction data **104**. Further details about analysis performed by the spend mapping tool **102** are found in FIGS. 2A, 2B, 3, 5, 6A, 6B, 6C, 7, and 8. The spend mapping tool **102** provides analysis results for use in at least one of a marketing decision **106**, an advertising decision **108**, and a risk calculation **110**.

FIG. 1B illustrates a plurality of exemplary transactions **150A, B, . . . , N** between merchants **151A, B, . . . , N** and cardmembers **153A, B, . . . , N**. Each cardmember **153** tenders a payment that has transaction value **164A, B, . . . , N**. In exchange for payment, merchant **151** provides goods and/or services. Each transaction **150** has associated transaction data **104**. Spend mapping tool **102** processes at least transaction **150** and is not limited by quantity of transactions **150**.

FIGS. 2A and 2B illustrate an example of classifying and grouping merchants **151** and cardmembers **153** by industry. Spend mapping tool **102** groups each cardmember **153** and merchant **151** into a respective industry group. Each merchant industry group **206** has a merchant industry code **200**.

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Each cardmember industry group **256** also has a cardmember industry code **250**. Merchant industry code **200** and cardmember industry code **250** may be an alphanumeric code having at least one digit. Merchant industry groups **206** and cardmember industry groups **256** may be divided further into sub-groups to provide greater detail. Thus, cardmember **153** and merchant **151** may be grouped by an industry sub-group. The number of industry groups and sub-groups is unlimited. Further, each sub-group has a sub-group industry code. A miscellaneous industry group may be used to identify parties that do not adequately fit into other industry groups.

A Standard Industrial Classification (SIC) code may be used as merchant industry code **200** and cardmember industry code **250**. A two-digit or a four-digit SIC code is assigned to each merchant industry group **206** and cardmember industry group **256**. One source of SIC codes is Dun and Bradstreet Corporation of Short Hills, N.J.

FIG. 2A illustrates a merchant industry code assignment **202** of a merchant industry code **200** to each merchant **151**. The spend mapping tool **102** assigns the respective merchant industry code **200** to each merchant **151**. In FIG. 2A, example merchant industry group codes **200** are SIC **01**, SIC **02**, and SIC **03**. In transaction **150A**, the merchant **151A** is Alpha corporation. Alpha corporation is assigned SIC **01** as merchant industry code **200** because Alpha corporation is in an industry identified by SIC **01**. A merchant **151** may be assigned more than one merchant industry code **200**. The number of merchant industry codes **200** is at least one.

FIG. 2A also illustrates merchant grouping **204**. The spend mapping tool **102** groups merchants **151** having a common merchant industry code **200** into a respective merchant industry group **206A, B, C**. In other words, all merchants **151** with the same merchant industry code **200** are grouped together in the same merchant industry group **206**. The merchant industry group **206** is identified by the merchant industry code **200** that is common to all members of that merchant industry group **206**. FIG. 2A illustrates an exemplary merchant grouping **204** of merchants **151** into respective merchant industry groups **206**. For example, merchant **151C**, the Echo Corporation, and merchant **151E**, the Delta Corporation, both have merchant industry code **200** of SIC **03**. Thus, merchant **151C**, the Echo Corporation, and merchant **151E**, the Delta Corporation, are grouped into the same merchant industry group **206** because both share the same merchant industry code **200** of SIC **03**. Any merchant **151** may be a member of more than one merchant industry group **206**. Merchant grouping **204** groups a merchant **151** from at least one transaction **150**. Merchant grouping **204** is not limited by number of transactions **150**.

FIG. 2B illustrates cardmember industry code assignment **252** of cardmember industry code **250** to each cardmember **153**. The spend mapping tool **102** assigns the respective cardmember industry code **250** to each cardmember **153**. In FIG. 2B, example cardmember industry group codes **250** are SIC **01**, SIC **02**, and SIC **03**. Though the set of cardmember industry group codes **250** is identical to that of merchant industry group codes **200** in this example, the two sets of codes may differ. In transaction **150A**, the cardmember **153A** is Bravo corporation. Bravo corporation is assigned SIC **02** as cardmember industry code **250** because Bravo corporation is in an industry identified by SIC **02**. A cardmember **153** may be assigned more than one cardmember industry code **250**. The number of cardmember industry codes **250** is at least one.

FIG. 2B also illustrates cardmember grouping **254**. The spend mapping tool **102** groups cardmembers **153** having a common cardmember industry group code **250** into a respective cardmember industry group **256A, B, C**. In other words,

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all cardmembers **153** with the same cardmember industry code **250** are grouped together in the same cardmember industry group **256**. The cardmember industry group **256** is identified by the cardmember industry code **250** that is common to all members of that cardmember industry group **256**. FIG. 2B illustrates an exemplary cardmember grouping **254** of cardmembers **153** into respective cardmember industry groups **256**. For example, cardmember **153A**, the Bravo Corporation, and cardmember **153C**, the Charlie Corporation, both have a cardmember industry code **250** of SIC **02**. Thus, cardmember **153A**, the Bravo Corporation, and cardmember **153C**, the Charlie Corporation, are grouped into the same cardmember industry group **256** because both share the same cardmember industry code **250** of SIC **02**. Cardmember **153** may be a member of more than one cardmember industry group **256**. Cardmember grouping **254** groups a cardmember **153** from at least one transaction **150**. Cardmember grouping **254** is not limited by number of transactions **150**.

FIGS. 3-8 illustrate how spend mapping tool **102** analyzes transaction data **104** of transactions **150** between cardmembers **153** in a cardmember industry group **256** and merchants **151** in a merchant industry group **206**. FIG. 3 illustrates an example of a two-dimensional array **300**. Each column in array **300** represents merchants **151** that share a common merchant industry code **200**. The right column of array **300** represents merchants **151** that share a common merchant industry code **200** of SIC **03**. Further, each row in array **300** represents cardmembers **153** that share a common cardmember industry code **250**. The bottom row of array **300** represents cardmembers **153** that share a common cardmember industry code **250** of SIC **03**.

Each intersection between a row and a column forms a cell such as cell **302**. Within each cell, transaction data **104** is analyzed for transactions **150** between cardmembers **153** in the cardmember industry group **256** represented by the row and merchants **151** in the merchant industry group **206** represented by the column. If a cell has no transaction **150**, then a zero or null value **304** is used to represent transaction data **104** in that empty cell.

For example, first transaction **150A** is between merchant Alpha Corporation and cardmember Bravo Corporation. Merchant Alpha Corporation is grouped in the merchant industry group **206A** having the merchant industry code **200** of SIC **01**. Similarly, cardmember Bravo Corporation is grouped in the cardmember industry group **256B** having the cardmember industry code **250** of SIC **02**. Cell **302** corresponds to both merchant industry code **200** of SIC **01** and cardmember industry code **250** of SIC **02**. Thus, first transaction **150A** and associated transaction data **104A** are analyzed in cell **302**.

FIG. 4 illustrates exemplary transaction data **104A** that includes cardmember name **153** and merchant name **151**. Transaction data **104** may also include transaction value **164**, a merchant number **450**, a cardmember account number **452**, a number of transactions per merchant **454**, a number of transactions per cardmember **456**, a merchant geographical location **458**, a cardmember geographical location **460**, a merchant tenure **462**, and a cardmember tenure **464**. Merchant tenure **462** is a measure of a period of time the merchant has had a merchant account open with the merchant account issuer. Cardmember tenure **464** is a measure of a period of time the cardmember has had a cardmember account open with the cardmember account issuer. Transaction value **164** may be in United States Dollars. Transaction data **104** may also include a card product description **466**. Transaction data **104** is not limited to these types of data and may include other data **468** related to a transaction **150**.

Referring to FIG. 5, the spend mapping tool 102 processes transaction data 104 in each cell to analyze transactions 150, and thus a market, between the cardmember industry group 256 and merchant industry group 206 represented by that cell. At least one transaction 150 and associated transaction data 104 are analyzed. Analysis is not limited by the number of transactions 150 or number of cells. FIG. 5 illustrates a spreadsheet output of an exemplary analysis 500 of transaction data 104. The analysis 500 determines a number of transactions 502 between cardmembers 153 in cardmember industry groups 256 and merchants 151 in merchant industry groups 206. For example, a cell 501 indicates there are two transactions between merchants 151 in the merchant industry group 206C having the merchant industry code 200 of SIC 03 and cardmembers 153 in the cardmember industry group 256A having the cardmember industry code 250 of SIC 01.

FIG. 5 further illustrates determining a total number of transactions 504 in cardmember industry group 256 as well as a total number of transactions 506 in merchant industry group 206. For example, the merchant industry group 206C having the merchant industry code 200 of SIC 03 has a total of four transactions 508.

In an exemplary embodiment, the spend mapping tool 102 processes transaction data 104 in each cell to calculate a number of accounts in force (AIF) in each cell. The spend mapping tool 102 may also process transaction data 104 in each cell to calculate a number of active accounts in each cell.

FIG. 6A illustrates a spreadsheet output 600 of an exemplary analysis of transaction data 104. The analysis 600 determines a total transaction amount 602 for transactions 150 between cardmembers 153 in a cardmember industry group 256 and merchants 151 in a merchant industry group 206. For example, cell 601 contains results of analysis of transaction data 104 for transaction 150C and transaction 150E. Transaction 150C has a transaction value 164C of \$5,000. Transaction 150E has a transaction value 164E of \$7,500. Thus, the total transaction amount 602 for cell 601 is \$12,500.

FIG. 6A further illustrates determining a total transaction amount 604 per cardmember industry group 256. A total transaction amount 606 per merchant industry group 206 may also be determined. For example, Delta Corporation and Echo Corporation are merchants in the same merchant industry group 206C that has merchant industry code 200 of SIC 03. Delta Corporation and Echo Corporation are merchants in transactions 150C, 150D, 150E, and 150N. The total transaction value 164 for these four transactions is \$15,500. Thus, total transaction amount 606 for merchant industry group 206C is \$15,500.

FIG. 6B is an exemplary screen shot 625 generated by spend mapping tool 102 showing total transaction amounts 602 between cardmember industry groups 256 and merchant industry groups 206. FIG. 6B further illustrates determining a total transaction amount 604 per cardmember industry group 256 as well as determining a total transaction amount 606 per merchant industry group 206. Transaction data 104 that is not grouped into either cardmember industry group 256 or merchant industry group 206 is placed into a "missing" cell 627.

FIG. 6C illustrates an overview 650 of an analysis 651 of transaction data 104 in cell 501. Cell 501 contains transaction data 104D and transaction data 104N. Analysis 651 may include determining any one of: number of cardmember accounts by cell 652, number of cardmember accounts by cardmember industry group 654, number of merchant accounts by cell 656, and number of merchant accounts by merchant industry group 658. Analysis 651 may further include filtering transaction data 104 by geography 660, card product 662, merchant account tenure 664, and cardmember

account tenure 666. Filtering transaction data 104 is one way to segment a market between cardmember industry group 256 and merchant industry group 206. Spend mapping tool 102 may also perform trend analysis 668 of transaction data 104. Furthermore, analysis 651 may identify risk associated with a merchant-cardmember relationship. In an exemplary embodiment, analysis 651 determines an optimal ratio of price of advertising to return on advertising for each cell.

Results of analysis 651 may be input to at least one of marketing decision 106, advertising decision 108, and risk calculation 110. An exemplary marketing decision 106 may target an industry segment based upon results of analysis 651. Analysis results may also be input to advertising decision 108. Further, results of analysis 651 may be input to developing an industry strategy. Trend analysis 668 of transaction data 104 may be used to determine an effect of advertising on a market represented by a specific cell. An advertisement may be targeted to at least one of merchant 151 or cardmember 153 based upon analysis 651.

The spend mapping tool 102 creates a list of merchants 151 by merchant industry group 206. The spend mapping tool 102 also creates a list of names of cardmembers 153 by cardmember industry group 256. Further, a list of names of merchants 151 and cardmembers 153 whose transaction data 104 is in a particular cell may be generated. In various examples, results of analysis 651 may be output in spreadsheet form, in tabular form, on a graphical display, or printed.

FIG. 7 illustrates an exemplary flowchart showing a process 700 for analyzing transaction 150. At step 702, merchant 151 is grouped by industry in merchant industry group 206. At step 704, cardmember 153 is grouped by industry in cardmember industry group 256. At least one of grouping of merchant 151 and grouping of cardmember 153 is by a standard industry classification (SIC) code.

At step 706, transaction data 104 from transaction 150 between at least one merchant 151 in merchant industry group 206 and at least one cardmember 153 in cardmember industry group 256 is analyzed. Transaction data 104 includes at least one of transaction value 164, number of transactions per merchant 454, number of transactions per cardmember 456, merchant geographical location 458, cardmember geographical location 460, merchant tenure 462, and cardmember tenure 464. Step 706 may include at least one of determining number of transactions 502, determining transaction amounts 602, determining number of cardmember accounts 652, determining number of merchant accounts 656, filtering by geography 660, filtering by card product 662, filtering by merchant account tenure 664, filtering by cardmember account tenure 666, listing merchant 151 by merchant industry group 206, listing cardmember 153 by cardmember industry group 256, and determining a trend 668 in transaction data 104.

Step 706 may further include targeting advertising by at least one of merchant 151 and cardmember 153. Step 706 may also form the basis for evaluating the effect of advertising to at least one of merchant 151 and cardmember 153. Transaction risk may also be determined based on step 706. Further, an industry strategy may be developed based on step 706.

The present invention or any part(s) or function(s) thereof may be implemented using hardware, software or a combination thereof and may be implemented in one or more computer systems or other processing systems. However, manipulations performed by the present invention were often referred to in terms, such as adding or comparing, which are commonly associated with mental operations performed by a human operator. No such capability of a human operator is

necessary, or desirable in most cases, in any of the operations described herein which form part of the present invention. Rather, the operations are machine operations. Useful machines for performing the operation of the present invention include general purpose digital computers or similar devices.

In one embodiment, the invention is directed toward one or more computer systems capable of carrying out the functionality described herein. An example of a computer system **800** is shown in FIG. **8**. Computer system **800** includes one or more processors, such as processor **804**. The processor **804** is connected to communication infrastructure **806** (e.g., a communications bus, cross-over bar, or network). Various software embodiments are described in terms of this exemplary computer system. After reading this description, it will become apparent to a person skilled in the relevant art(s) how to implement the invention using other computer systems and/or architectures.

Computer system **800** can include a display interface **802** that forwards graphics, text, and other data from communication infrastructure **806** (or from a frame buffer not shown) for display on display unit **830**.

Computer system **800** also includes main memory **808**, preferably random access memory (RAM), and may also include secondary memory **810**. Secondary memory **810** may include, for example, hard disk drive **812** and/or removable storage drive **814**, representing a floppy disk drive, a magnetic tape drive, an optical disk drive, etc. Removable storage drive **814** reads from and writes to removable storage unit **818** in a well known manner. Removable storage unit **818** represents a floppy disk, magnetic tape, optical disk, etc. which is read by and written to by removable storage drive **814**. As will be appreciated, removable storage unit **818** includes a computer usable storage medium having stored therein computer software or data.

In alternative embodiments, secondary memory **810** may include other similar devices for allowing computer programs or other instructions to be loaded into computer system **800**. Such devices may include, for example, removable storage unit **818** and interface **820**. Examples of such may include a program cartridge and cartridge interface (such as that found in video game devices), a removable memory chip (such as an erasable programmable read only memory (EPROM), or programmable read only memory (PROM)) and associated socket, and other removable storage units **818** and interfaces **820**, which allow software and data to be transferred from removable storage unit **818** to computer system **800**.

Computer system **800** may also include communications interface **824**. Communications interface **824** allows software and data to be transferred between computer system **800** and external devices. Examples of communications interface **824** may include a modem, a network interface (such as an Ethernet card), a communications port, a Personal Computer Memory Card International Association (PCMCIA) slot and card, etc. Software and data transferred via communications interface **824** are in the form of signals which may be electronic, electromagnetic, optical or other signals capable of being received by communications interface **824**. These signals are provided to communications interface **824** via a communications path (e.g., channel) **826**. This channel **826** carries the signals and may be implemented using wire or cable, fiber optics, a telephone line, a cellular link, a radio frequency (RF) link and other communications channels.

In this document, the terms "computer program medium" and "computer usable medium" are used to generally refer to media such as removable storage drive **814**, a hard disk installed in hard disk drive **812**. These computer program

products provide software to computer system **800**. The invention is directed in part to such computer program products.

Computer programs (also referred to as computer control logic) are stored in main memory **808** or secondary memory **810**. Computer programs may also be received via communications interface **824**. Such computer programs, when executed, enable computer system **800** to perform the features of the present invention, as discussed herein. In particular, the computer programs, when executed, enable processor **804** to perform the features of the present invention. Accordingly, such computer programs represent controllers of computer system **800**.

In an embodiment where the invention is implemented using software, the software may be stored in a computer program product and loaded into computer system **800** using removable storage drive **814**, hard drive **812** or communications interface **824**. The control logic (software), when executed by processor **804**, causes processor **804** to perform functions of the invention as described herein.

In another embodiment, the invention is implemented primarily in hardware using, for example, hardware components such as application specific integrated circuits (ASICs). Implementation of the hardware state machine so as to perform the functions described herein will be apparent to persons skilled in the relevant art(s).

In yet another embodiment, the invention is implemented using a combination of both hardware and software.

III. Conclusion

While various embodiments of the present invention have been described above, it should be understood that they have been presented by way of example, and not limitation. It will be apparent to persons skilled in the relevant art(s) that various changes in form and detail can be made therein without departing from the spirit and scope of the present invention. Thus, the present invention should not be limited by any of the above described exemplary embodiments, but should be defined only in accordance with the following claims and their equivalents.

In addition, it should be understood that the figures and screen shots illustrated in the attachments, which highlight the functionality and advantages of the present invention, are presented for example purposes only. The architecture of the present invention is sufficiently flexible and configurable, such that it may be utilized (and navigated) in ways other than that shown in the accompanying figures.

Further, the purpose of the Abstract is to enable the U.S. Patent and Trademark Office and the public generally, and especially scientists, engineers, and practitioners in the art who are not familiar with patent or legal terms, to determine quickly from a cursory inspection the nature and essence of the technical disclosure of the application. The Abstract and Summary are not intended to be limiting as to the scope of the present invention in any way.

What is claimed is:

1. A method comprising:

- grouping, by a computer processor for analyzing transactions between merchants and cardmembers, a merchant by industry in a merchant industry group;
- grouping, by the computer processor, a cardmember by industry in a cardmember industry group, wherein the cardmember is a business organization; and
- analyzing, by the computer processor, transaction data from a transaction between at least one merchant in said

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merchant industry group and at least one cardmember in said cardmember industry group,
 wherein the analyzing comprises determining an aggregate transaction value over a period of time between the merchant and the cardmember,
 wherein the analyzing further comprises filtering by cardmember account tenure and by merchant account tenure, wherein cardmember account tenure comprises a period of time during which the cardmember has held open a cardmember transaction account, and wherein merchant account tenure comprises a period of time during which the merchant has held open a merchant transaction account,
 developing, by the computer processor, an industry strategy based upon the analysis; and
 targeting, by the computer processor, a first advertisement to said merchant and a second advertisement to said cardmember.

2. The method of claim 1, wherein at least one of said grouping of said merchant and said grouping of said cardmember is by a standard industry classification (SIC) code.

3. The method of claim 1, wherein said analyzing includes at least one of:

- determining a number of transactions;
- determining a transaction amount;
- determining a number of cardmember accounts;
- determining a number of merchant accounts;
- filtering by geography;
- filtering by card product;
- filtering to segment a market;
- listing said merchant by said merchant industry group;
- listing said cardmember by said cardmember industry group; and
- determining a trend in transaction data over time.

4. The method of claim 1, wherein said transaction data includes at least one of:

- a transaction amount;
- a number of transactions per merchant;
- a number of transactions per cardmember;
- a merchant geographical location;
- a cardmember geographical location,
- a merchant tenure; and
- a cardmember tenure.

5. The method of claim 1, wherein said industry strategy comprises at least one of:

- identifying a risk associated with the merchant and the cardmember; and
- determining an optimal ratio of price of advertising to return on advertising.

6. The method of claim 1, further including evaluating an advertisement to at least one of said merchants and said cardmembers based on said analyzing step.

7. The method of claim 1, further including determining a transaction risk based on said analyzing step.

8. A system comprising:

- a processor for analyzing transaction between merchants and cardmembers;
- a tangible, non-transitory memory configured to communicate with the processor,
- the tangible, non-transitory memory having instructions stored thereon that, in response to execution by the processor, cause the processor to perform operations comprising:

- grouping, by the processor, a merchant by industry in a merchant industry group;

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- grouping, by the processor, a cardmember by industry in a cardmember industry group, wherein the cardmember is a business organization; and
- analyzing, by the processor, transaction data from a transaction between at least one merchant in said merchant industry group and at least one cardmember in said cardmember industry group,

wherein the analyzing comprises determining an aggregate transaction value over a period of time between the merchant and the cardmember,

- wherein the analyzing further comprises filtering by cardmember account tenure and by merchant account tenure, wherein cardmember account tenure comprises a period of time during which the cardmember has held open a cardmember transaction account, and wherein merchant account tenure comprises a period of time during which the merchant has held open a merchant transaction account,
- developing, by the processor, an industry strategy based upon the analysis; and
- targeting, by the processor, a first advertisement to said merchant and a second advertisement to said cardmember.

9. The system of claim 8, wherein at least one of said grouping of said merchant and said grouping of said cardmember is by a standard industry classification (SIC) code.

10. The system of claim 8, wherein said analyzing comprises at least one of:

- determining a number of transactions;
- determining a transaction amount;
- determining a number of cardmember accounts;
- determining a number of merchant accounts;
- filtering by geography;
- filtering by card product;
- filtering to segment a market;
- listing said merchant by said merchant industry group;
- listing said cardmember by said cardmember industry group; and
- determining a trend in transaction data over time.

11. The system of claim 8, wherein said transaction data includes at least one of:

- a transaction amount;
- a number of transactions per merchant;
- a number of transactions per cardmember;
- a merchant geographical location;
- a cardmember geographical location,
- a merchant tenure; and
- cardmember tenure.

12. The system of claim 8, wherein said industry strategy comprises at least one of:

- identifying a risk associated with the merchant and the cardmember; and
- determining an optimal ratio of price of advertising to return on advertising.

13. An article of manufacture including a non-transitory, tangible computer readable storage medium having instructions stored thereon that, in response to execution by a computer-based system for analyzing transactions between merchants and cardmembers, cause the computer-based system to be capable of performing operations comprising:

- grouping, by the computer-based system, a merchant by industry in a merchant industry group;
- grouping, by the computer-based system, a cardmember by industry in a cardmember industry group, wherein the cardmember is a business organization; and
- analyzing, by the computer-based system, transaction data from a transaction between at least one merchant in said

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merchant industry group and at least one cardmember in said cardmember industry group,
 wherein the analyzing comprises determining an aggregate transaction value over a period of time between the merchant and the cardmember,
 wherein the analyzing further comprises filtering by cardmember account tenure and by merchant account tenure, wherein cardmember account tenure comprises a period of time during which the cardmember has held open a cardmember transaction account, and wherein merchant account tenure comprises a period of time during which the merchant has held open a merchant transaction account,
 developing, by the computer-based system, an industry strategy based upon the analysis; and
 targeting, by the computer-based system, a first advertisement to said merchant and a second advertisement to said cardmember.

14. The article of manufacture of claim **13**, wherein at least one of said grouping of said merchant and said grouping of said cardmember is by a standard industry classification (SIC) code.

15. The article of manufacture of claim **13**, wherein said analyzing comprises:

- determining a number of transactions;
- determining a transaction amount;

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determining a number of cardmember accounts;
 determining a number of merchant accounts;
 filtering by geography;
 filtering by card product;
 filtering to segment a market;
 listing said merchant by said merchant industry group;
 listing said cardmember by said cardmember industry group; and
 determining a trend in transaction data over time.

16. The article of manufacture of claim **13**, wherein said transaction data includes at least one of:

- a transaction amount;
- a number of transactions per merchant;
- a number of transactions per cardmember;
- a merchant geographical location;
- a cardmember geographical location,
- a merchant tenure; and
- a cardmember tenure.

17. The article of manufacture of claim **13**, wherein said industry strategy comprises at least one of:

- identifying a risk associated with the merchant and the cardmember; and
- determining an optimal ratio of price of advertising to return on advertising.

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